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Scientific and Technological Activities of Provincial Governments 1992-1993 to 2000-2001[e]

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SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES OF PROVINCIAL GOVERNMENTS

1992-1993 to 2000-2001[e]

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FOREWORD

The basic mission of the Science, Innovation and Electronic Information Division of Statistics Canada is to assure the availability of pertinent statistical information, to monitor science and technology activities in Canada and to support the development of science and technology policy. This report is one of many produced by the Science and Innovation Surveys Section to respond to these needs.

The information in this document is intended primarily to be used by scientific and technological (S&T) policy makers, both federal and provincial, largely as a basis for interprovincial and intersectoral comparisons. The surveys that generate these statistics also provide input for the development of a national aggregate Research and Development (R&D) series. These national R&D estimates are used to complete international questionnaires for the Organization for Economic Co-operation and Development (OECD) and the United Nations Education, Scientific and Cultural Organization (UNESCO).

The statistics are aggregates of the provincial government science surveys conducted by Statistics Canada under contract with the provinces, and cover the period 1992-1993 to 2000-2001[e]. The surveys have covered as many as nine provinces, the exception being Prince Edward Island.

Science surveys, like many other surveys, depend on respondents' interpretation of definitions and methods of calculation. Accounting records are rarely available which use a science-based classification. Recognizing the fact that the data are estimates, they are still a good representation of science expenditures for the provinces. As in any ongoing statistical exercise, revisions will be necessary as definitions and procedures become clarified.

This publication was prepared by **Sage Cram** under the direction of **Bert Plaus**, Chief, Science and Innovation Surveys Section, Science, Innovation and Electronic Information Division.

We want to thank those who replied and collaborated to each of the provincial surveys. Without their invaluable help, the production of this report would not have been possible. We would also like to thank Lloyd Lizotte and Bev Watier for their assistance in the preparation of this report.

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History of Provincial S&T Surveys

Prior to 1974, estimates were made for provincial government S&T expenditures using Provincial Estimates and Public Accounts.

In 1974, Ontario, Alberta and Nova Scotia sought the assistance of Statistics Canada in conducting surveys of S&T spending by their respective governments. In 1975, Saskatchewan joined this group, followed by British Columbia in 1977, Manitoba and New Brunswick in 1984, Newfoundland and Labrador in 1986 and Québec in 1989.

In 1993-94, three provinces, Newfoundland, New Brunswick and Nova Scotia, did not contract with Statistics Canada for a survey due to budget constraints. In 1994-95, the province of Québec collected only R&D expenditures instead of total S&T. For the national R&D statistics, estimates are made for provinces for which there is no survey.

Federal/Provincial Workshops on S&T Statistics

In the fall of 1977, the first Federal-Provincial meeting was held in Ottawa. Representatives from British Columbia, Alberta, Saskatchewan, Ontario and Nova Scotia attended; as well as Statistics Canada and members of the Ministry of State for Science and Technology (MOSST).

The next meeting was held in 1984 with representatives from British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Québec and New Brunswick attending. Statistics Canada sponsored the meeting and invited representatives from MOSST, Energy, Mines and Resources (EMR) and the Science Council. The objectives of the conference were:

- To provide provincial science policy and statistical users with an overview of products and services of the Science and Technology Statistics Division (STSD);
- To provide a forum to allow discussion between STSD and provincial representatives to exchange views on science statistics;
- Achievement of consensus on how to proceed with future provincial surveys.

In 1999, Ontario proposed to Statistics Canada to renew Federal/Provincial conferences and make them an annual event. Statistics Canada agreed and co-hosted the 1999 conference in Toronto. The agenda included topics such as innovation surveys, biotechnology surveys, intellectual properties in higher education, e-commerce and provincial needs and proposals.

Québec and Statistics Canada co-hosted the 2000 conference held in Québec City. Discussions included economic indicators, an innovation study for Ontario, and biotechnology measurement.

In the fall of 2001, British Columbia and Statistics Canada co-hosted the conference in Victoria. Provincial representatives discussed high technology indicators, innovation index, and user needs and challenges. Statistics Canada presented an overview of current program developments and future plans.

The province of Alberta has expressed an interest in co-hosting the 2002 Federal/Provincial conference.

Symbols used in this report:

.. figures not available
... figures not appropriate or not applicable
- nil or zero
e estimated figures
r revised figures

Definitions

This report covers those scientific and technological activities which involve the generation, dissemination and application of new scientific and technological knowledge. The central activity is research and experimental development (R&D). In addition, there are a number of activities closely related to R&D, these are termed related scientific activities (RSA).

R&D is creative work undertaken on a systematic basis in order to increase the stock of scientific and technical knowledge, including knowledge of culture and society and the use of this stock of knowledge to devise new applications.

It requires the acquisition of knowledge and not just information. New knowledge involves the integration of newly acquired information into existing hypotheses or the re-evaluation of existing observations.

The major related scientific activities are education support, technical surveys, statistical surveys, information services, special services and studies, and museum services. Education support and museum services are largely self-explanatory.

Technical surveys are activities directed towards exploration and systematic description of the earth and its natural resources. The activities include gathering, processing, collating and analyzing of data on natural phenomena except when part of a research project or a museum service. The preparation of maps and survey reports, their printing and cataloguing, are also included.

Statistical surveys are activities directed toward the collecting, processing and disseminating of statistics on humankind, their economic and social activities. Included are the development of technical methodology, statistical analysis and vital statistics.

Information services are all work directed to recording, classifying, translating, and disseminating information resulting from R&D in the social sciences or required in support of such R&D. Included are the operations of specialized libraries and archives, the publication of scholarly journals and bibliographies, and the organizing of scientific conferences. Grants for the publication of scholarly works are also included.

Special services and studies in the natural sciences are activities directed towards the establishment of national and provincial standards for materials, devices, products and processes; the calibration of secondary standards; non-routine quality testing; feasibility studies and demonstration projects.

In the social science, special services and studies are systematic investigation carried out in order to provide information needed for planning or policy formulation, including feasibility studies and demonstration projects.

Scientific and technological activities take place in both natural sciences and social sciences and humanities. The natural sciences consist of disciplines concerned with understanding, exploring, developing or utilizing the natural world. The social sciences and humanities embrace all disciplines involving the study of human actions and conditions and the social, economic and institutional mechanisms affecting humans.

Six performing sectors are identified. **Intramural** refers to the provincial ministry or agency performing a scientific activity. **Business enterprise** denotes largely private corporations but also includes crown corporations with a commercial function (e.g., power utilities) and industrial research institutes not controlled by another institution. **The Higher education sector** cover post secondary educational institutions and affiliated teaching and research facilities. **Hospitals and health organizations** are health organizations such as the Heart Foundation and hospitals which do not belong in the university sector. **Provincial Research Organizations** include the InNOVAcorp (Nova Scotia), the New Brunswick Research and Productivity Council, le Centre de recherche industriel du Québec, ORTECH Corporation (Ontario), Industrial Technology Centre (Manitoba), the Saskatchewan Research Council, the Alberta Research Council, and the NUNAVUT Research Institute. **Other** includes the federal government, municipal governments, individuals, institutions not identified with any other sector, and foreign performers.

Departmental personnel are classified into three major categories. Scientific and professional includes persons in a job requiring at least one academic degree or nationally recognized professional qualification. The Technical category includes people in jobs requiring specialized vocational or technical training beyond the secondary level. Other includes clerical, secretarial, administrative, operational and other support personnel. Personnel data are reported in full-time equivalent which is simply the portion of a person's time spent on S&T activities.

The objectives listed in this survey do not represent the total range of possible objectives, however, they are intended to cover the major areas of current technological interest. Respondents are asked to report expenditures under the objective which is primary to that expenditure.

Provincial Indicators

Province	Population January / 99[1]	PGDP 1999[2]	GERD 1999[3]	GERD/PGDP 1999[3]	GERD/Capita 1999
	(000)	($ 000,000)	($ 000,000)	%	$
Newfoundland	541	12,110	125	1.0	231
Prince Edward Island	137	2,994	26	0.9	190
Nova Scotia	939	22,407	343	1.5	365
New Brunswick	754	18,390	162	0.9	215
Québec*	7,347	204,062	4,822	2.4	656
Ontario*	11,501	396,775	7,941	2.0	690
Manitoba	1,141	30,995	370	1.2	324
Saskatchewan	1,026	30,143	317	1.1	309
Alberta	2,952	116,990	1,097	0.9	372
British Columbia	4,024	118,783	1,224	1.0	304
Canada[4]	30,462	957,911	17,243	1.8	566

[1] *CANSIM II, Table 051-0005.*

[2] *Canadian Economic Observer, Catalogue No. 11-010-XPB, Monthly, August 2001.*

[3] *Science Statistics, Catalogue No. 88-001-XPB, Vol. 25, No. 8, November 2001.*

[4] *Includes the Yukon and the Northwest Territories and Nunavut.*

* *Québec and Ontario GERD figures exclude Federal Government expenditures of $807 million performed in the National Capital Region.*

Total Budget and Scientific Expenditures of the Federal Government and the Provincial Governments, 1999-2000

Province	Total Budget[1]	S&T Expenditures	R&D Expenditures	S&T % Budget	R&D % Budget
		In millions of dollars		percent	
Federal Government:					
Canada	156,157	6,846	4,211	4.4	2.7
Provincial Governments:					
Québec	43,172	..	470	..	1.0
Ontario	62,822	455	281	0.7	0.4
Manitoba	6,046	43	15	0.7	0.2
Saskatchewan	5,570	64[e]	46[e]	1.1	0.8
Alberta	13,224	235	173	1.8	1.3
British Columbia	21,045	236	73	1.1	0.3

[1] *Taken from Budgetary Estimates of the Federal and Provincial Government*

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Table 1. Total Expenditures of Provincial Governments on Scientific Activities 1992-1993 to 2000-2001 [p]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]
	in thousands of dollars								
Newfoundland	30,326[e]	..	..	..	..	..	..	..	..
Nova Scotia	51,660	..	..	..	..	..	..	..	..
Québec	650,530	608,710	..	..	..	..	..	..	..
Ontario	449,970	425,733	425,160	419,980	336,718	314,809	344,778	455,445	636,318
Manitoba	39,440	42,535	47,114	45,825	41,926	39,833	49,082	43,286	47,626
Saskatchewan	46,310	42,043	49,940	49,146	41,832	70,164	75,146	64,040	..
Alberta	229,276	207,828	17,200	168,424	168,846	178,388	214,417	234,592	244,145
British Columbia	212,940	205,961	215,187	232,159	247,787	260,839	255,554	235,686	235,374

Table 2. Total Expenditures of Provincial Governments on R&D, 1992-1993 to 2000-2001 [p]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]
	in thousands of dollars								
Newfoundland	8,286	..	..	..	..	..	..	..	..
Nova Scotia	11,117	..	..	..	..	..	..	..	..
Québec	235,761	242,011	230,543	218,307	216,246	206,676	201,124[r]	470,230	388,871
Ontario	291,286	259,642	250,440	250,863	210,577	210,196	213,553	280,836	460,970
Manitoba	6,666	9,649	11,764	10,608	10,183	7,130	15,087	14,708	18,671
Saskatchewan	20,565	22,801	32,702	31,555	27,908	55,444	56,700	45,941	..
Alberta	131,216	129,863	102,693	101,892	110,484	126,470	157,385	173,218	182,275
British Columbia	80,996	74,039	72,622	77,985	89,274	88,684	72,829	72,674	67,810

Table 3. Personnel of Provincial Governments Engaged in Scientific Activities, by Province, 1992-1993 to 2000-2001 [p]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]
	person-years								
Newfoundland	363	..	..	..	..	..	..	..	..
Nova Scotia	616	..	..	..	..	..	..	..	..
Québec	5,663	4,948	..	..	..	..	..	..	..
Ontario	2,641	2,668	2,842	2,768	2,003	1,863	1,957	2,101	2,169
Manitoba	441	400	358	364	391	407	416	402	361
Saskatchewan	299	275	281	291	203	213	246	250	..
Alberta	1,849	1,603	1,174	1,048	713	768	812	819	693
British Columbia	1,724	1,659	1,719	1,618	1,555	1,513	1,441	1,378	1,347

Table 4. Provincial Government Scientists and Professionals Engaged in Scientific Activities, by Province, 1992-1993 to 2000-2001 [e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					person-years				
Newfoundland	165	..	..	..	..	..	..	..	..
Nova Scotia	294	..	..	..	..	..	..	..	..
Québec	2,758	2,336	..	..	..	..	..	..	..
Ontario	1,129	1,234	1,257	1,232	857	814	1,118	1,191	1,236
Manitoba	273	226	202	204	215	239	250	236	197
Saskatchewan	168	158	166	178	126	134	165	166	..
Alberta	657	615	539	412	329	390	424	373	392
British Columbia	982	873	889	827	787	733	690	657	650

Table 5. Personnel of Provincial Governments Engaged in R&D, by Province, 1992-1993 to 2000-2001 [e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					person-years[1]				
Newfoundland	63	..	..	..	..	..	..	..	..
Nova Scotia	82	..	..	..	..	..	..	..	..
Québec	768	727	782	649	643	559	437	410	429
Ontario	960	892	926	918	573	527	537	607	631
Manitoba	19	16	16	7	7	20	20	31	29
Saskatchewan	45	55	56	62	35	38	28	31	..
Alberta	538	486	329	287	212	221	230	229	232
British Columbia	328	336	333	215	272	265	246	251	271

[1] *Excluding Administration of Extramural R&D Programs Personnel.*

Table 6. Provincial Government Scientists and Professionals Engaged in R&D, by Province, 1992-1993 to 2000-2001 [e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					person-years[1]				
Newfoundland	38	..	..	..	..	..	..	..	..
Nova Scotia	31	..	..	..	..	..	..	..	..
Québec	305	293	312	279	331[r]	330[r]	291[r]	264	266
Ontario	451	449	470	460	365	337	358	367	381
Manitoba	9	9	12	6	5	15	17	18	17
Saskatchewan	19	22	24	33	35	28	19	19	..
Alberta	197	183	175	137	120	125	131	95	95
British Columbia	198	199	188	126	164	141	140	143	152

[1] *Excluding Administration of Extramural R&D Programs Personnel.*

Table 7. Total Expenditures of Provincial Governments on Scientific Activities, by Sector of Performance, 1999-2000

Province	Intramural	Business Enterprise	Higher Education	Hospitals and Health Organisations	Provincial Research Organisations	Other	Total
				in thousands of dollars			
Ontario	184,805	13,931	183,412	27,746	-	45,551	455,445
Manitoba	25,750	478	8,118	4,186	2,910	1,844	43,286
Saskatchewan[e]	17,332	7,572	17,621	48	9,100	12,367	64,040
Alberta	68,026	17,397	92,671	8,130	36,367	12,001	234,592
British Columbia	120,790	76,128	24,859	972	-	12,937	235,686

Table 8. Total Expenditures of Provincial Governments on R&D, by Sector of Performance, 1999-2000

Province	Intramural	Business Enterprise	Higher Education	Hospitals and Health Organisations	Provincial Research Organisations	Other	Total
				in thousands of dollars			
Québec	40,925	27,657	165,885	81,526	5,720	148,517	470,230
Ontario	62,808	6,176	162,199	24,968	-	24,685	280,836
Manitoba	1,807	187	8,018	2,336	2,023	337	14,708
Saskatchewan[e]	2,831	4,423	17,441	48	9,100	12,098	45,941
Alberta	26,127	5,702	91,619	6,800	35,667	7,303	173,218
British Columbia	26,218	23,357	20,490	91	-	2,518	72,674

Table 9. Personnel of Provincial Governments Engaged in Scientific Activities, by Category, 1999-2000

Activity/Category	Ontario	Manitoba	Saskatchewan [e]	Alberta	B.C.
			person-years		
Research and development:					
Scientific and professional	367	18	19	95	143
Technical	181	9	8	133	71
Other	59	4	4	1	37
Sub-total	607	31	31	229	251
Related scientific activities:					
Scientific and professional	769	214	130	239	436
Technical	360	95	44	200	235
Other	261	57	19	42	342
Sub-total	1,390	366	193	481	1,013
Administration of extramural programs:					
Scientific and professional	55	4	17	39	78
Technical	13	1	4	14	19
Other	37	1	5	56	17
Sub-total	105	6	26	109	114
Total scientific activities:					
Scientific and professional	1,191	236	166	373	657
Technical	554	105	56	347	325
Other	357	62	28	99	396
Sub-total	2,101	402	250	819	1,378
Total	**2,101**	**402**	**250**	**819**	**1,378**

Table 10. Total Expenditures of the Ontario Government on scientific activities, by Objective, 1995-1996 to 2000-2001[e]

Former Objective	1995-96	1996-97	1997-98	1998-99	Current Objective	1999-2000	2000-2001[e]
					in thousands of dollars		
Advancement of science	80,603	70,352	82,359	83,479	Exploration and Utilization of the Earth	30,441	29,916
Communications	19,744	2,003	1,986	5,829			
Energy and fuels:					Infrastructure and General Planning of Land Use:		
Conservation	100	484	50	100	Transportation Systems	3,845	3,341
Fossil fuels	-	27	-	-	Telecommunications	19,956	20,396
Hydro electric energy	-	-	-	4,250	Other	1,175	545
Renewable resources	-	-	-	-			
Other	25	-	-	-	Pollution, Conservation and Protection of the Environment	43,219	40,707
Environmental issues:							
Air	9,245	8,028	6,753	7,423	Public Health	86,613	124,042
Land	9,742	6,123	5,119	5,512			
Water	15,537	21,710	18,257	13,998	Production, Distribution and		
Other	2,664	8,975	6,595	11,304	Rational Utilization of Energy	1,758	1,027
Health	69,439	79,350	66,713	67,148	Agriculture Production and Technology	42,749	43,190
Industrial and economic development:							
Agriculture	66,777	41,955	40,387	38,126	Fishing	3,970	3,763
Fisheries	3,979	3,940	4,259	2,500			
Forestry	21,508	8,904	8,432	9,090	Forestry	17,038	17,063
Manufacturing	24,016	39,288	30,933	41,500			
Minerals	23,964	5,552	5,668	11,958	Industrial Production and		
Other	19,936	14,202	10,185	12,385	Technology	30,213	25,829
Social Development:					Social Development	68,713	76,187
Culture, sport and recreation	15,649	9,628	9,792	10,376			
Education	6,431	3,165	2,863	3,191	Exploration and Exploitation of		
Human resources	1,018	3	-	738	Space	1,405	1,348
Urban and regional studies	5,211	786	786	345			
Other	9,297	5,656	2,399	11,267	Basic Research	101,571	246,729
Transportation	4,509	4,530	3,270	3,018	Other Civil Research	2,779	2,235
Wildlife	3,493	1,408	2,298	440			
Other	7,093	649	5,705	801			
Total	**419,980**	**336,718**	**314,809**	**344,778**	**Total**	**455,445**	**636,318**

Table 11. Total Expenditures of the Manitoba Government on scientific activities, by Objective, 1995-1996 to 2000-2001*

Former Objective	1995-96	1996-97	1997-98	1998-99	Current Objective	1999-2000	2000-2001*
					in thousands of dollars		
Advancement of science	1,385	1,385	193	222	Exploration and Utilization of the Earth	4,670	4,916
Communications	39	37	161	168			
Energy and fuels:					Infrastructure and General Planning of Land Use:		
Conservation	65	35	42	-	Transportation Systems	2,266	2,767
Fossil fuels	246	192	162	225	Telecommunications	100	100
Hydro electric energy	-	-	-	-	Other	-	-
Renewable resources	-	-	-	-			
Other	-	-	-	-	Pollution, Conservation and Protection of the Environment	847	786
Environmental issues:							
Air	486	404	357	463	Public Health	4,743	5,654
Land	207	172	365	114			
Water	1,522	1,450	1,176	1,276	Production, Distribution and Rational Utilization of Energy	41	41
Other	315	247	524	129			
Health	9,834	5,131	4,862	5,342	Agriculture Production and Technology	3,344	4,199
Industrial and economic development:							
Agriculture	3,269	3,165	3,290	9,440	Fishing	1,390	1,415
Fisheries	1,290	1,306	1,273	1,340			
Forestry	525	525	530	1,368	Forestry	1,134	1,124
Manufacturing	3,088	3,272	1,885	571			
Minerals	3,083	4,368	4,299	4,314	Industrial Production and Technology	12,350	15,301
Other	8,536	6,545	4,026	7,754			
Social Development:					Social Development	12,173	11,071
Culture, sport and recreation	4,054	4,034	4,055	4,387			
Education	3,025	4,990	7,666	7,779	Exploration and Exploitation of Space	-	-
Human resources	651	676	657	721			
Urban and regional studies	1,381	298	233	235			
Other	568	931	1,036	922	Basic Research	195	233
Transportation	2,055	2,684	2,766	2,312	Other Civil Research	33	19
Wildlife	201	79	275	-			
Other	-	-	-	-			
Total	**45,825**	**41,926**	**39,833**	**49,082**	**Total**	**43,286**	**47,626**

Table 12. Total Expenditures of the Saskatchewan Government on scientific activities, by Objective, 1995-1996 to 2000-2001*

Former Objective	1995-96	1996-97	1997-98	1998-99	Current Objective	1999-2000*	2000-2001*
					in thousands of dollars		
Advancement of science	292	551	556	570	Exploration and Utilization of the Earth	-	..
Communications	775	56	50	324			
Energy and fuels:					Infrastructure and General Planning of Land Use:		
Conservation	488	18	-	35	Transportation Systems	421	..
Fossil fuels	218	275	264	3,267	Telecommunications	327	..
Hydro electric energy	-	-	-	-	Other	-	..
Renewable resources	-	-	-	-			
Other	5,290	473	477	477	Pollution, Conservation and Protection of the Environment	3,408	..
Environmental issues:							
Air	163	154	154	183	Public Health	11,341	..
Land	-		-	-			
Water	994	709	807	1,212	Production, Distribution and		
Other	872	1,609	1,631	1,634	Rational Utilization of Energy	2,045	..
Health	8,704	7,513	8,075	9,045	Agriculture Production and Technology	26,555	..
Industrial and economic development:							
Agriculture	12,716	13,283	40,012	36,789	Fishing	608	..
Fisheries	550	521	558	572			
Forestry	1,721	1,469	1,574	1,688	Forestry	2,246	..
Manufacturing	1,850	1,304	1,210	1,415			
Minerals	1,393	2,455	2,507	4,199	Industrial Production and		
Other	4,348	4,035	4,270	4,606	Technology	8,800	..
Social Development:					Social Development	7,221	..
Culture, sport and recreation	1,843	2,132	2,154	2,490			
Education	2,680	1,269	1,158	875	Exploration and Exploitation of		
Human resources	607	980	1,471	2,494	Space	-	..
Urban and regional studies	570	222	222	122			
Other	1,382	848	944	2,295	Basic Research	568	..
Transportation	682	1,525	1,608	384	Other Civil Research	5,001	..
Wildlife	1,008	431	462	470			
Other	-	-	-	-			
Total	**49,146**	**41,832**	**70,164**	**75,146**	**Total**	**64,040**	..

Table 13. Total Expenditures of the Alberta Government on scientific activities, by Objective, 1995-1996 to 2000-2001[e]

Former Objective	1995-96	1996-97	1997-98	1998-99	Current Objective	1999-2000	2000-2001[e]
					in thousands of dollars		
Advancement of science	1,487	25,323	15,258	59,146	Exploration and Utilization of the Earth	1,803	993
Communications	-	-	-	-			
					Infrastructure and General		
Energy and fuels:					Planning of Land Use:		
Conservation	-	-	-	-	Transportation Systems	7,026	7,118
Fossil fuels	25,273	23,768	10,404	14,813	Telecommunications	1,943	937
Hydro electric energy	-	-	-	-	Other	2,708	2,622
Renewable resources	50	-	-	3			
Other	-	-	1,699	1,650	Pollution, Conservation and Protection of the		
Environmental issues:					Environment	25,020	23,923
Air	2,310	494	1,304	1,582			
Land	2,976	124	118	1,267	Public Health	81,500	86,935
Water	4,058	1,893	11,369	7,952			
Other	13,088	10,609	10,495	11,615	Production, Distribution and Rational		
Health	35,663	44,297	46,045	51,403	Utilization of Energy	8,989	8,307
Industrial and economic development:					Agriculture Production and Technology	43,777	41,022
Agriculture	33,056	34,405	38,925	40,817			
Fisheries	140	-	50	350	Fishing	-	-
Forestry	2,877	3,633	4,089	1,307			
Manufacturing	20,322	-	17,033	-	Forestry	-	-
Minerals	336	33	38	165			
Other	10,683	11,672	7,436	6,090	Industrial Production and Technology	600	600
Social Development:							
Culture, sport and recreation	7,900	7,900	8,222	7,900	Social Development	8,720	8,720
Education	782	232	165	167			
Human resources	1,086	-	-	-	Exploration and Exploitation		
Urban and regional studies	797	460	-	-	of Space	-	-
Other	180	654	1,010	1,003			
					Basic Research	48,822	58,218
Transportation	3,951	3,294	4,076	5,996			
					Other Civil Research	3,684	4,750
Wildlife	1,409	55	363	1,186			
Other	-	-	289	-			
Total	**168,424**	**168,846**	**178,388**	**214,417**	**Total**	**234,592**	**244,145**

Table 14. Total Expenditures of the British Columbia Government on scientific activities, by Objective, 1995-1996 to 2000-2001[e]

Former Objective	1995-96	1996-97	1997-98	1998-99	Current Objective	1999-2000	2000-2001[e]
					in thousands of dollars		
Advancement of science	9,247	6,124	1,783	1,708	Exploration and Utilization of the Earth	5,677	5,390
Communications	1,230	850	1,776	849			
Energy and fuels:					Infrastructure and General Planning of Land Use:		
Conservation	793	759	805	273	Transportation Systems	865	599
Fossil fuels	979	591	567	535	Telecommunications	873	673
Hydro electric energy	275	317	285	231	Other	15	9
Renewable resources	131	304	324	254			
Other	906	5	214	495	Pollution, Conservation and Protection of the Environment	40,693	38,094
Environmental issues:							
Air	1,755	2,248	16,702	10,596	Public Health	27,795	22,727
Land	13,282	16,569	30,238	31,764			
Water	2,915	3,654	18,539	13,376	Production, Distribution and Rational Utilization of Energy	338	255
Other	11,807	14,082	13,343	5,084			
Health	27,812	23,967	23,409	22,811	Agriculture Production and Technology	1,371	1,298
Industrial and economic development:							
Agriculture	2,797	2,080	2,540	1,482	Fishing	5,097	4,796
Fisheries	3,231	4,793	5,162	7,732			
Forestry	83,303	88,725	74,327	92,136	Forestry	77,439	78,567
Manufacturing	2,033	3,824	4,270	3,881			
Minerals	7,355	8,165	6,159	5,665	Industrial Production and Technology	22,835	22,412
Other	16,230	25,340	16,794	18,397			
Social Development:					Social Development	44,285	54,154
Culture, sport and recreation	14,023	15,961	17,474	18,243			
Education	5,708	7,327	10,371	8,121	Exploration and Exploitation of Space	-	-
Human resources	2,799	2,076	2,809	2,032			
Urban and regional studies	1,450	2,082	1,798	2,481			
Other	14,033	5,381	4,970	4,463	Basic Research	4,800	2,539
Transportation	2,397	2,671	1,161	477	Other Civil Research	3,603	3,861
Wildlife	5,613	9,790	4,984	2,347			
Other	55	102	35	121			
Total	**232,159**	**247,787**	**260,839**	**255,554**	**Total**	**235,686**	**235,374**

Table 15. Total Expenditures of the Ontario Government on R&D, by Objective, 1995-1996 to 2000-2001[e]

Former Objective	1995-96	1996-97	1997-98	1998-99	Current Objective	1999-2000	2000-2001[e]
					in thousands of dollars		
Advancement of science	55,292	42,997	55,248	48,028	Exploration and Utilization of the Earth	2,468	2,007
Communications	14,478	-	100	4,722			
Energy and fuels:					Infrastructure and General Planning of Land Use:		
Conservation	-	484	50	-	Transportation Systems	1,315	1,325
Fossil fuels	-	27	-	-	Telecommunications	17,882	18,023
Hydro electric energy	-	-	-	-	Other	500	200
Renewable resources	-	-	-	-			
Other	25	-	-	-	Pollution, Conservation and Protection of the Environment	2,587	2,293
Environmental issues:							
Air	2,054	329	290	206	Public Health	78,382	114,285
Land	2,753	245	216	172			
Water	5,457	933	772	1,615	Production, Distribution and		
Other	2,243	1,762	286	5,050	Rational Utilization of Energy	234	118
Health	61,635	65,778	63,826	64,139	Agriculture Production and Technology	35,489	36,153
Industrial and economic development:							
Agriculture	51,958	41,955	40,387	38,126	Fishing	3,970	3,761
Fisheries	2,404	3,265	3,965	2,500			
Forestry	11,927	4,581	4,744	3,659	Forestry	14,154	14,151
Manufacturing	20,112	39,288	30,933	41,248			
Minerals	5,289	710	710	586	Industrial Production and		
Other	-	-	1,227	-	Technology	21,597	17,305
Social Development:					Social Development	12,511	18,347
Culture, sport and recreation	1,530	1,082	1,483	-			
Education	802	944	842	567	Exploration and Exploitation of		
Human resources	1,018	-	-	-	Space	1,014	956
Urban and regional studies	426	529	529	71			
Other	3,852	-	-	1,973	Basic Research	86,848	231,097
Transportation	2,428	4,530	3,270	691	Other Civil Research	1,885	949
Wildlife	2,904	1,138	1,318	200			
Other	2,276	-	-	-			
Total	**250,863**	**210,577**	**210,196**	**213,553**	**Total**	**280,836**	**460,970**

Table 16. Total Expenditures of the Manitoba Government on R&D, by Objective, 1995-1996 to 2000-2001*

Former Objective	1995-96	1996-97	1997-98	1998-99	Current Objective	1999-2000	2000-2001*
					in thousands of dollars		
Advancement of science	93	93	193	222	Exploration and Utilization of the Earth	29	5
Communications	-	-	-	-			
Energy and fuels:					Infrastructure and General Planning of Land Use:		
Conservation	32	35	42	-	Transportation Systems	62	62
Fossil fuels	-	-	-	-	Telecommunications	-	-
Hydro electric energy	-	-	-	-	Other	-	-
Renewable resources	-	-	-	-			
Other	-	-	-	-	Pollution, Conservation and Protection of the Environment	-	-
Environmental issues:							
Air	23	25	-	-	Public Health	2,843	3,754
Land	27	63	12	-			
Water	55	40	17	10	Production, Distribution and		
Other	97	108	269	3	Rational Utilization of Energy	-	-
Health	3,506	3,015	2,962	3,442	Agriculture Production and Technology	1,052	1,280
Industrial and economic development:							
Agriculture	939	922	918	6,455	Fishing	-	-
Fisheries	-	-	-	-			
Forestry	125	125	125	139	Forestry	452	442
Manufacturing	2,967	3,163	1,786	462			
Minerals	110	26	12	-	Industrial Production and		
Other	1,820	2,375	383	4,138	Technology	9,848	12,786
Social Development:					Social Development	227	109
Culture, sport and recreation	-	5	-	4			
Education	749	125	348	149	Exploration and Exploitation of		
Human resources	-	-	-	-	Space	-	-
Urban and regional studies	-	-	-	-			
Other	-	-	-	-	Basic Research	195	233
Transportation	65	63	63	63	Other Civil Research	-	-
Wildlife	-	-	-	-			
Other	-	-	-	-			
Total	**10,608**	**10,183**	**7,130**	**15,087**	**Total**	**14,708**	**18,671**

Table 17. Total Expenditures of the Saskatchewan Government on R&D, by Objective, 1995-1996 to 2000-2001[e]

Former Objective	1995-96	1996-97	1997-98	1998-99	Current Objective	1999-2000[e]	2000-2001[e]
					in thousands of dollars		
Advancement of science	292	551	556	570	Exploration and Utilization of the Earth	-	..
Communications	668	-	-	244			
Energy and fuels:					Infrastructure and General Planning of Land Use:		
Conservation	488	18	-	35	Transportation Systems	421	..
Fossil fuels	218	-	-	3,243	Telecommunications	250	..
Hydro electric energy	-	-	-	-	Other	-	..
Renewable resources	-	-	-	-			
Other	5,290	473	477	477	Pollution, Conservation and Protection of the Environment	1,678	..
Environmental issues:							
Air	-	10	-	25	Public Health	8,675	..
Land	-	-	-	-			
Water	-	-	-	334	Production, Distribution and		
Other	872	1,609	1,631	1,634	Rational Utilization of Energy	2,021	..
Health	6,408	5,295	5,917	6,397	Agriculture Production and Technology	25,618	..
Industrial and economic development:							
Agriculture	11,767	12,682	39,311	35,475	Fishing	300	..
Fisheries	270	256	274	282			
Forestry	40	35	37	38	Forestry	540	..
Manufacturing	1,199	1,105	1,115	1,115			
Minerals	792	1,498	1,511	2,653	Industrial Production and		
Other	1,427	2,205	2,200	2,336	Technology	5,063	..
Social Development:					Social Development	-	..
Culture, sport and recreation	-	-	-	-			
Education	-	-	-	10	Exploration and Exploitation of		
Human resources	-	-	-	-	Space	-	..
Urban and regional studies	75	-	-	-			
Other	110	323	414	1,000	Basic Research	568	..
Transportation	682	1,439	1,563	384	Other Civil Research	478	..
Wildlife	957	409	438	448			
Other	-	-	-	-			
Total	**31,555**	**27,908**	**55,444**	**56,700**	**Total**	**45,941**	..

Table 18. Total Expenditures of the Alberta Government on R&D, by Objective, 1995-1996 to 2000-2001[e]

Former Objective	1995-96	1996-97	1997-98	1998-99	Current Objective	1999-2000	2000-2001[e]
				in thousands of dollars			
Advancement of science	872	23,859	13,742	53,887	Exploration and Utilization of the Earth	1,803	993
Communications	-	-	-	-			
Energy and fuels:					Infrastructure and General Planning of Land Use:		
Conservation	-	-	-	-	Transportation Systems	1,519	966
Fossil fuels	6,664	6,105	10,340	14,754	Telecommunications	1,943	937
Hydro electric energy	-	-	-	-	Other	108	22
Renewable resources	-	-	-	-			
Other	-	-	1,185	1,388	Pollution, Conservation and Protection of the Environment	3,310	3,803
Environmental issues:							
Air	1,308	281	1,191	787	Public Health	75,986	80,118
Land	2,149	-	30	4			
Water	1,756	157	413	131	Production, Distribution and		
Other	203	38	2,079	2,616	Rational Utilization of Energy	8,989	8,307
Health	32,173	40,929	40,893	46,933	Agriculture Production and Technology	29,743	27,341
Industrial and economic development:							
Agriculture	21,826	23,978	27,706	28,041	Fishing	-	-
Fisheries	-	-	-	-			
Forestry	2,099	2,820	3,359	1,287	Forestry	-	-
Manufacturing	20,322	-	17,033	-			
Minerals	-	33	38	165	Industrial Production and		
Other	10,032	11,285	7,141	5,490	Technology	600	600
Social Development:					Social Development	320	320
Culture, sport and recreation	-	-	-	-			
Education	5	-	-	-	Exploration and Exploitation of		
Human resources	-	-	-	-	Space	-	-
Urban and regional studies	341	40	-	-			
Other	-	320	350	320	Basic Research	48,697	58,118
Transportation	1,057	633	722	1,281	Other Civil Research	200	750
Wildlife	1,085	6	193	301			
Other	-	-	55	-			
Total	**101,892**	**110,484**	**126,470**	**157,385**		**173,218**	**182,275**

Table 19. Total Expenditures of the British Columbia Government on R&D, by Objective, 1995-1996 to 2000-2001[e]

Former Objective	1995-96	1996-97	1997-98	1998-99	Current Objective	1999-2000	2000-2001[e]
					in thousands of dollars		
Advancement of science	2,145	145	100	212	Exploration and Utilization of the Earth	812	744
Communications	970	147	1,191	197			
Energy and fuels:					Infrastructure and General Planning of Land Use:		
Conservation	710	680	778	255	Transportation Systems	-	-
Fossil fuels	560	177	145	102	Telecommunications	550	360
Hydro electric energy	186	71	32	28	Other	5	5
Renewable resources	42	62	70	38			
Other	906	-	187	470	Pollution, Conservation and Protection of the Environment	3,864	4,340
Environmental issues:							
Air	555	816	288	528	Public Health	8,176	6,842
Land	642	1,855	1,615	1,132			
Water	681	922	1,474	1,281	Production, Distribution and Rational Utilization of Energy	327	216
Other	1,214	1,785	796	448			
Health	13,512	11,395	10,998	8,927	Agriculture Production and Technology	713	640
Industrial and economic development:							
Agriculture	1,512	1,291	1,544	1,073	Fishing	3,510	3,261
Fisheries	2,521	3,612	3,041	2,402			
Forestry	40,843	46,704	50,160	39,552	Forestry	33,817	31,136
Manufacturing	1,651	2,861	2,950	2,692			
Minerals	469	647	717	858	Industrial Production and Technology	8,695	4,910
Other	6,979	7,825	4,047	7,105			
Social Development:					Social Development	4,659	9,704
Culture, sport and recreation	104	62	800	229			
Education	429	1,871	1,862	1,540	Exploration and Exploitation of Space	-	-
Human resources	181	610	1,011	628			
Urban and regional studies	-	640	418	777			
Other	-	-	-	-	Basic Research	4,743	2,482
Transportation	128	538	602	-	Other Civil Research	2,803	3,003
Wildlife	990	4,456	3,823	2,328			
Other	55	102	35	27			
Total	**77,985**	**89,274**	**88,684**	**72,829**	**Total**	**72,674**	**67,810**

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Table 20. Total Expenditures of Provincial Governments on Scientific Activities in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	20,865	..	..	..	..	..	..	..	..
Nova Scotia	32,533	..	..	..	..	..	..	..	..
Québec	386,759	361,048	..	..	..	..	..	..	..
Ontario	318,895	300,027	308,661	309,494	243,370	241,142	259,321[r]	342,756	500,589
Manitoba	24,446	26,094	28,468	28,396	27,265	22,657	31,268	27,394	32,647
Saskatchewan	32,079	29,112	37,865	36,483	31,747	58,912	60,649	48,945	..
Alberta	194,897	181,189	153,343	156,114	157,212	164,917	202,152	219,770	228,045
British Columbia	160,377	159,726	158,774	180,046	196,079	199,575	201,322	166,366	163,132

Table 21. Intramural Expenditures of Provincial Governments on Scientific Activities in the Natural Sciences and Engineering 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	14,056	..	..	..	..	..	..	..	..
Nova Scotia	22,450	..	..	..	..	..	..	..	..
Québec	183,507	150,773	..	..	..	..	..	..	..
Ontario	115,750	117,109	140,094	140,042	109,790	97,145	105,481	133,812	137,657
Manitoba	15,555	13,163	12,657	12,515	14,157	13,073	13,933	12,700	13,420
Saskatchewan	8,116	7,581	7,854	8,182	6,741	7,282	8,426	8,016	..
Alberta	76,025	69,152	59,737	71,859	57,983	49,432	52,885	58,841	58,646
British Columbia	80,286	81,115	83,643	81,915	87,258	112,791	92,163	70,451	69,583

Table 22. Payments to Business Enterprises by Provincial Governments for Scientific Activities in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	5,097	..	..	..	..	..	..	..	..
Nova Scotia	5,883	..	..	..	..	..	..	..	..
Québec	59,899	79,809	..	..	..	..	..	..	..
Ontario	58,159	41,536	32,755	32,793	11,936	12,079	7,401	6,428	8,665
Manitoba	1,266	3,512	4,358	4,341	4,978	2,477	2,304	288	678
Saskatchewan	5,788	4,426	11,840	10,424	2,357	3,641	8,263	5,992	..
Alberta	36,456	44,096	160,445	11,503	9,932	15,841	26,242	16,553	15,406
British Columbia	44,843	52,676	52,174	68,836	74,198	56,499	72,402[r]	71,762	68,108

Table 23. Payments to the Higher Education Sector by Provincial Governments for Scientific Activities in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	1,025	..	..	..	..	..	..	..	..
Nova Scotia	2,026	..	..	..	..	..	..	..	..
Québec	65,562	58,059	..	..	..	..	..	..	..
Ontario	123,179	118,133	115,635	115,376	101,748	111,635	118,384	165,622	259,772
Manitoba	3,061	2,692	2,950	2,414	2,354	2,897	5,936	7,853	9,719
Saskatchewan	8,971	9,354	8,945	9,312	10,247	16,505	17,690	16,851	..
Alberta	37,066	29,101	28,959	27,244	45,974	55,486	72,634	91,799	93,009
British Columbia	23,224	14,793	12,031	18,584	21,230	22,989	19,148	19,943	20,103

Table 24. Payments to Other Performers[1] by Provincial Governments for Scientific Activities in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	687	..	..	..	..	..	..	..	..
Nova Scotia	2,114	..	..	..	..	..	..	..	..
Québec	38,169	21,817	..	..	..	..	..	..	..
Ontario	7,593	8,224	2,543	4,273	5,718	3,531	8,226	11,684	3,856
Manitoba	1,239	1,917	2,061	1,638	1,624	1,653	2,156	1,307	1,545
Saskatchewan	3,680	2,744	4,017	2,910	2,438	21,558	17,094	9,008	..
Alberta	7,895	7,418	14,882	21,158	8,011	10,424	14,444	9,136	10,331
British Columbia	9,596	7,009	9,485	10,539	13,143	6,967	6,824	3,920	5,048

[1] *Other performers include the federal government, municipal governments, individuals, institutions not identified with any other sector, and foreign performers.*

Table 25. Total Expenditures of Provincial Governments on R&D in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	7,836	..	..	..	..	..	..	..	..
Nova Scotia	11,092	..	..	..	..	..	..	..	..
Québec	199,281	196,265	184,223	171,187	167,935	156,645	151,408[r]	384,391	320,250
Ontario	241,565	213,042	210,148	212,252	176,840	181,163	186,070	235,049	395,887
Manitoba	6,052	8,851	9,709	9,422	9,571	6,374	14,424	14,192	18,194
Saskatchewan	17,742	19,997	30,046	28,808	25,449	52,400	52,900	41,902	..
Alberta	128,527	125,280	101,826	101,419	110,086	125,870	156,815	172,598	181,680
British Columbia	78,732	71,346	69,568	74,612	86,477	85,377	69,152	69,663	64,935

Table 26. Intramural Expenditures of Provincial Governments on R&D in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	3,930	..	..	..	..	..	..	..	..
Nova Scotia	4,375	..	..	..	..	..	..	..	..
Québec	49,302	46,379	42,822	39,602	39,287	37,436	35,546	32,150	32,120
Ontario	71,512	57,300	65,308	66,732	49,119	41,299	43,183	58,839	61,415
Manitoba	769	861	716	529	436	1,078	1,212	1,560	1,552
Saskatchewan	3,558	3,422	3,416	3,835	3,002	3,233	2,885	2,771	..
Alberta	27,933	25,423	25,028	25,301	18,439	18,529	21,513	26,077	26,859
British Columbia	23,030	25,778	28,127	21,054	25,294	27,239	23,729	25,814	25,981

Table 27. Payments to Business Enterprises by Provincial Governments for R&D in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	3,640	..	..	..	..	..	..	..	..
Nova Scotia	3,279	..	..	..	..	..	..	..	..
Québec	23,498	36,395	29,341	24,192	18,713	14,672	13,138	27,082	27,148
Ontario	31,855	24,054	17,631	18,214	11,247	11,168	6,225	4,520	6,404
Manitoba	1,239	3,414	4,270	4,103	3,487	615	447	87	62
Saskatchewan	2,107	1,966	9,622	8,244	908	2,241	6,637	4,423	..
Alberta	23,592	35,889	6,835	5,305	5,565	10,705	19,777	5,702	4,723
British Columbia	23,022	23,545	22,496	28,973	31,593	30,627	26,427	23,357	17,939

Table 28. Payments to the Higher Education Sector by Provincial Governments for R&D in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	175	..	..	..	..	..	..	..	..
Nova Scotia	1,371	..	..	..	..	..	..	..	..
Québec	64,839	57,153	68,884	63,680	59,451	56,216	50,896	124,959	150,259
Ontario	120,731	108,923	108,506	108,450	101,558	111,613	115,419	144,607	238,973
Manitoba	3,061	2,688	2,950	2,389	2,354	2,897	5,934	7,853	9,719
Saskatchewan	6,796	9,017	8,502	8,872	9,751	15,975	17,372	16,841	..
Alberta	36,180	27,613	28,475	27,056	45,807	55,404	68,922	91,369	92,199
British Columbia	21,238	13,582	10,275	17,016	20,023	21,707	17,493	18,125	18,206

Table 29. Payments to Other Performers[1] by Provincial Governments for R&D in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[p]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]
					in thousands of dollars				
Newfoundland	91	..	..	..	..	..	..	..	..
Nova Scotia	2,067	..	..	..	..	..	..	..	..
Québec	22,432	6,182	6,147	7,004	11,671	11,327	12,328	121,062	29,064
Ontario	3,329	7,982	1,585	2,180	938	621	1,414	4,272	855
Manitoba	388	994	738	278	185	261	779	333	427
Saskatchewan	214	706	3,382	2,288	1,874	21,075	16,830	8,789	..
Alberta	5,967	5,776	12,919	19,916	6,359	8,711	11,824	6,983	7,591
British Columbia	9,014	4,308	7,248	7,423	9,317	5,519	1,503	2,367	2,809

[1] *Other performers include the federal government, municipal governments, individuals, institutions not identified with any other sector, and foreign performers.*

Table 30. Personnel of Provincial Governments Engaged in Scientific Activities in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[p]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]
					person-years				
Newfoundland	234	..	..	..	..	..	..	..	..
Nova Scotia	366	..	..	..	..	..	..	..	..
Québec	3,192	2,634	..	..	..	..	..	..	..
Ontario	1,408	1,511	1,715	1,723	1,288	1,209	1,256	1,408	1,442
Manitoba	259	240	209	209	214	192	195	196	195
Saskatchewan	156	148	149	158	107	110	121	125	..
Alberta	1,406	1,299	957	926	611	664	705	676	669
British Columbia	1,085	1,118	1,129	1,045	1,023	943	895	853	810

Table 31. Personnel of Provincial Governments Engaged in R&D in the Natural Sciences and Engineering, 1992-1993 to 2000-2001[p]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]
					person-years[1]				
Newfoundland	59	..	..	..	..	..	..	..	..
Nova Scotia	82	..	..	..	..	..	..	..	..
Québec	677	619	690	576	543	532	479	388	373
Ontario	780	719	761	780	466	445	433	567	590
Manitoba	14	14	14	5	4	17	17	26	24
Saskatchewan	43	55	52	58	29	31	28	31	..
Alberta	531	475	327	286	211	220	230	229	232
British Columbia	310	312	315	208	267	256	242	247	267

[1] *Excluding Administration of Extramural R&D Programs Personnel.*

Table 32. Total Expenditures of Provincial Governments on Scientific Activities in the Natural Sciences and Engineering, by Activity, 1999-2000

Activity	Ont.	Man.	Sask.[e]	Alta.	B.C.
			in thousands of dollars		
Research and development:					
Current expenditures:					
In-house	53,131	1,316	1,761	20,126	20,829
Contracts	40,581	15	24,223	3,866	6,811
Grants	134,121	11,847	14,486	142,805	32,602
Research fellowships	2,541	800	450	-	4,436
Administration of extramural R&D programs	3,554	190	882	5,761	4,720
Sub-total	**233,928**	**14,168**	**41,802**	**172,558**	**69,398**
Capital expenditures	1,121	24	100	40	265
Total R&D	**235,049**	**14,192**	**41,902**	**172,598**	**69,663**
Related scientific activities:					
Current expenditures:					
Education Support	13,408	25	27	90	794
Technical Suveys	52,754	6,159	6,009	26,687	58,150
Information Services	14,049	1,170	40	10,340	19,422
Special Services and Studies	12,912	5,473	549	6,598	9,440
Museum Services	9,904	317	-	2,520	6,300
Administration of extramural RSA programs	1,464	30	418	787	2,092
Sub-total	**104,491**	**13,174**	**7,043**	**47,022**	**96,198**
Capital expenditures	3,216	28	-	150	505
Total RSA	**107,707**	**13,202**	**7,043**	**47,172**	**96,703**
Total	**342,756**	**27,394**	**48,945**	**219,770**	**166,366**

Table 33. Total Expenditures of Provincial Governments on Scientific Activities in the Natural Sciences and Engineering, by Sector of Performance, 1999-2000

Province	Intramural	Business Enterprise	Higher Education	Hospitals and Health Organisations	Provincial Research Organisations	Other	Total
				in thousands of dollars			
Ontario	133,812	6,428	165,622	25,210	-	11,684	342,756
Manitoba	12,700	288	7,853	2,336	2,910	1,307	27,394
Saskatchewan[e]	8,016	5,992	16,851	48	9,030	9,008	48,945
Alberta	58,841	16,553	91,799	7,075	36,367	9,136	219,771
British Columbia	70,451	71,762	19,943	290	-	3,920	166,366

Table 34. Total Expenditures of Provincial Governments on R&D in the Natural Sciences and Engineering, by Sector of Performance, 1999-2000

Province	Intramural	Business Enterprise	Higher Education	Hospitals and Health Organisations	Provincial Research Organisations	Other	Total
				in thousands of dollars			
Québec	32,150	27,082	124,959	74,095	5,042	121,062	384,390
Ontario	58,839	4,520	144,607	22,811	-	4,272	235,049
Manitoba	1,560	87	7,853	2,336	2,023	333	14,192
Saskatchewan[e]	2,771	4,423	16,841	48	9,030	8,789	41,902
Alberta	26,077	5,702	91,369	6,800	35,667	6,983	172,598
British Columbia	25,814	23,357	18,125	-	-	2,367	69,663

Table 35. Personnel of Provincial Governments Engaged in Scientific Activities in the Natural Sciences and Engineering, by Category, 1999-2000

Activity/Category	Ontario	Manitoba	Saskatchewan [e]	Alberta	BC
			person-years		
Research and development:					
Scientific and professional	336	14	19	95	140
Technical	176	9	8	133	70
Other	54	3	4	1	37
Sub-total	567	26	31	229	247
Related scientific activities:					
Scientific and professional	504	74	33	154	193
Technical	243	71	29	190	166
Other	18	21	7	23	153
Sub-total	765	166	69	367	512
Administration of extramural programs:					
Scientific and professional	44	4	16	34	61
Technical	5 -		4	14	18
Other	26	1	5	32	15
Sub-total	75	5	25	80	94
Total scientific activities:					
Scientific and professional	885	92	68	283	394
Technical	425	80	41	337	254
Other	98	25	16	56	205
Sub-total	1,408	196	125	676	853
Total	**1,408**	**196**	**125**	**676**	**853**

Table 36. Total Expenditures of Provincial Governments on Scientific Activities in the Natural Sciences and Engineering, by Objective, 1999-2000

Objective	Ont.	Man.	Sask.[e]	Alta.	B.C.
			in thousands of dollars		
Exploration and Utilization of the Earth	30,401	4,670	-	1,803	5,677
Infrastructure and General Planning of Land Use:					
Transportation Systems	3,592	2,266	421	7,026	865
Telecommunications	10,109	100	250	1,943	573
Other	1,100	-	-	2,708	13
Pollution, Conservation and Protection of the Environment	43,219	833	2,834	25,020	40,277
Public Health	60,081	2,770	4,706	76,512	5,834
Production, Distribution and Rational Utilization of Energy	461	-	1,975	8,989	327
Agriculture Production and Technology	42,749	3023	26,435	43,777	1,371
Fishing	3,970	1,390	608	-	4,897
Forestry	16,398	1,134	2,134	-	72,157
Industrial Production and Technology	27,434	10,789	8,514	600	12,672
Social Development	5,994	317	-	2,370	13,638
Exploration and Exploitation of Space	1,405	-	-	-	-
Basic Research	93,898	102	568	48,822	4,758
Other Civil Research	1,945	-	500	200	3,307
Total	**342,756**	**27,394**	**48,945**	**219,770**	**166,366**

Table 37. Total Expenditures of Provincial Governments on R&D in the Natural Sciences and Engineering, by Objective, 1999-2000

Objective	Ont.	Man.	Sask.[e]	Alta.	B.C.
			in thousands of dollars		
Exploration and Utilization of the Earth	2,468	29	-	1,803	812
Infrastructure and General Planning of Land Use:					
Transportation Systems	1,087	62	421	1,519	-
Telecommunications	8,219	-	250	1,943	550
Other	500	-	-	108	5
Pollution, Conservation and Protection of the Environment	2,587	-	1,678	3,310	3,864
Public Health	55,465	2,770	4,706	75,686	5,359
Production, Distribution and Rational Utilization of Energy	234	-	1,951	8,989	327
Agriculture Production and Technology	35,489	929	25,618	29,743	713
Fishing	3,970	-	300	-	3,500
Forestry	13,578	452	540	-	33,817
Industrial Production and Technology	21,343	9,848	5,392	600	8,695
Social Development	1,068	-	-	-	4,465
Exploration and Exploitation of Space	1,014	-	-	-	-
Basic Research	86,147	102	568	48,697	4,743
Other Civil Research	1,880	-	478	200	2,803
Total	**235,049**	**14,192**	**41,902**	**172,598**	**69,663**

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Table 38. Total Expenditures of Provincial Governments on Scientific Activities in the Social Sciences and Humanities, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	9,461	..	..	..	..	..	..	..	..
Nova Scotia	19,127	..	..	..	..	..	..	..	..
Québec	263,771	247,662	..	..	..	..	..	..	..
Ontario	131,075	125,706	116,500	110,486	93,348	73,667	85,457	112,689	135,729
Manitoba	14,994	16,441	18,646	17,429	14,661	17,176	17,814	15,892	14,979
Saskatchewan	14,231	12,931	12,075	12,663	10,085	11,252	14,497	15,095	..
Alberta	34,379	26,639	18,657	12,310	11,634	13,471	12,265	14,822	16,100
British Columbia	52,563	46,235	56,413	52,113	51,708	61,264	58,668[r]	69,320	72,242

Table 39. Intramural Expenditures of Provincial Governments on Scientific Activities in the Social Sciences and Humanities, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	7,154	..	..	..	..	..	..	..	..
Nova Scotia	15,125	..	..	..	..	..	..	..	..
Québec	172,290	148,139	..	..	..	..	..	..	..
Ontario	83,147	70,938	71,237	66,001	50,048	46,413	50,903	50,993	55,974
Manitoba	11,370	10,583	9,296	9,859	11,732	13,799	14,491	13,050	12,147
Saskatchewan	8,495	8,785	8,370	8,850	6,185	6,772	9,337	9,316	..
Alberta	25,960	18,828	14,252	8,230	7,384	7,551	7,908	9,185	9,571
British Columbia	39,126	39,677	43,521	43,058	40,895	41,720	43,133	50,339	53,749

Table 40. Total Expenditures of Provincial Governments on R&D in the Social Sciences and Humanities, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					in thousands of dollars				
Newfoundland	450	..	..	..	..	..	..	..	..
Nova Scotia	25	..	..	..	..	..	..	..	..
Québec	36,480	45,746	46,320	47,120	48,312	30,031	49,716[r]	85,839	68,622
Ontario	49,721	46,600	40,292	38,611	33,737	29,033	27,483	45,787	65,083
Manitoba	614	798	2,055	1,186	612	756	663	516	477
Saskatchewan	2,823	2,804	2,656	2,747	2,459	3,044	3,800	4,039	..
Alberta	2,689	4,583	867	473	398	600	570	620	595
British Columbia	2,264	4,693	3,054	3,373	2,797	3,307	3,677	3,011	2,875

Table 41. Personnel of Provincial Governments Engaged in Scientific Activities in the Social Sciences and Humanities, 1992-1993 to 2000-2001[e]

Province	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[e]
					person-years				
Newfoundland	129	..	..	..	..	..	..	..	..
Nova Scotia	250	..	..	..	..	..	..	..	..
Québec	2,471	2,314	..	..	..	..	..	..	..
Ontario	1,233	1,157	1,127	1,045	715	654	701	694	727
Manitoba	182	160	149	155	177	215	221	206	166
Saskatchewan	143	127	131	133	96	103	125	125	..
Alberta	443	304	217	122	102	104	107	143	145
British Columbia	639	541	590	573	532	570	546	525	537

Table 42. Total Expenditures of Provincial Governments on Scientific Activities in the Social Sciences and Humanities, by Activity, 1999-2000

Activity	Ont.	Man.	Sask.[e]	Alta.	B.C.
			in thousands of dollars		
Research and development:					
Current expenditures					
In-house	2,674	124	-	-	197
Contracts	6,078	126	246	-	-
Grants	34,139	149	3,733	570	2,607
Research fellowships	1,656	16	-	-	-
Administration of extramural R&D programs	1,240	101	60	50	200
Sub-total	**45,787**	**516**	**4,039**	**620**	**3,004**
Capital expenditures	-	-	-	-	7
Total R&D	**45,787**	**516**	**4,039**	**620**	**3,011**
Related scientific activities:					
Current expenditures	65,678	15,326	11,056	12,988	60,355
Administration of extramural RSA programs	934	-	-	1,214	871
Sub-total	**66,612**	**15,326**	**11,056**	**14,202**	**61,226**
Capital expenditures	290	50	-	-	5,083
Total RSA	**66,902**	**15,376**	**11,056**	**14,202**	**66,309**
Total	**112,689**	**15,892**	**15,095**	**14,822**	**69,320**

Table 43. Total Expenditures of Provincial Governments on Scientific Activities in the Social Sciences and Humanities, by Sector of Performance, 1999-2000

Province	Intramural	Business Enterprise	Higher Education	Hospitals and Health Organisations	Provincial Research Organisations	Other	Total
			in thousands of dollars				
Ontario	50,993	7,503	17,790	2,536	-	33,867	112,689
Manitoba	13,050	190	205	1,850	-	537	15,892
Saskatchewan[e]	9,316	1,580	770	-	70	3,359	15,095
Alberta	9,185	845	872	1,055	-	2,865	14,822
British Columbia	50,339	4,366	4,916	682	-	9,017	69,320

Table 44. Total Expenditures of Provincial Governments on R&D in the Social Sciences and Engineering, by Sector of Performance, 1999-2000

Province	Intramural	Business Enterprise	Higher Education	Hospitals and Health Organisations	Provincial Research Organisations	Other	Total
			in thousands of dollars				
Québec	8,775	575	40,926	7,431	678	27,454	85,839
Ontario	3,969	1,656	17,592	2,157	-	20,413	45,787
Manitoba	247	100	165	-	-	4	516
Saskatchewan[e]	60	-	600	-	70	3,309	4,039
Alberta	50	-	250	-	-	320	620
British Columbia	404	-	2,365	91	-	151	3,011

Table 45. Personnel of Provincial Governments Engaged in Scientific Activities in the Social Sciences and Humanities, by Category, 1999-2000

Activity/Category	Ont.	Man.	Sask.*	Alta.	B.C.
			person-years		
Research and development:					
Scientific and professional	30	4	-	-	3
Technical	5	-	-	-	1
Other	5	1	-	-	-
Sub-total	40	5	-	-	4
Related scientific activities:					
Scientific and professional	265	140	97	85	243
Technical	117	24	15	10	69
Other	243	36	12	19	189
Sub-total	625	200	124	114	501
Administration of extramural programs:					
Scientific and professional	11	-	1	5	17
Technical	7	1	-	-	1
Other	11	-	-	24	2
Sub-total	29	1	1	29	20
Total scientific activities:					
Scientific and professional	306	144	98	90	263
Technical	129	25	15	10	71
Other	259	37	12	43	191
Sub-total	694	206	125	143	525
Total	**694**	**206**	**125**	**143**	**525**

Table 46. Total Expenditures of Provincial Governments on Scientific Activities in the Social Sciences and Humanities, by Objective, 1999-2000

Objective	Ont.	Man.	Sask.*	Alta.	B.C.
			in thousands of dollars		
Exploration and Utilization of the Earth	40	-	-	-	-
Infrastructure and General Planning of Land Use:					
Transportation Systems	253	-	-	-	-
Telecommunications	9,847	-	77	-	300
Other	75	-	-	-	2
Pollution, Conservation and Protection of the Environment	-	14	574	-	416
Public Health	26,532	1,973	6,635	4,988	21,961
Production, Distribution and Rational Utilization of Energy	1,297	41	70	-	11
Agriculture Production and Technology	-	321	120	-	-
Fishing	-	-	-	-	200
Forestry	640	-	112	-	5,282
Industrial Production and Technology	2,779	1,561	286	-	10,163
Social Development	62,719	11,856	7,221	6,350	30,647
Exploration and Exploitation of Space	-	-	-	-	-
Basic Research	7,673	93	-	-	42
Other Civil Research	834	33	-	3,484	296
Total	**112,689**	**15,892**	**15,095**	**14,822**	**69,320**

Table 47. Total Expenditures of Provincial Governments on R&D in the Social Sciences and Humanities, by Objective, 1999-2000

Objective	Ont.	Man.	Sask.*	Alta.	B.C.
			in thousands of dollars		
Exploration and Utilization of the Earth	-	-	-	-	-
Infrastructure and General Planning of Land Use:					
Transportation Systems	228	-	-	-	-
Telecommunications	9,663	-	-	-	-
Other	-	-	-	-	-
Pollution, Conservation and Protection of the Environment	-	-	-	-	-
Public Health	22,917	73	3,969	300	2,817
Production, Distribution and Rational Utilization of Energy	-	-	70	-	-
Agriculture Production and Technology	-	123	-	-	-
Fishing	-	-	-	-	-
Forestry	576	-	-	-	-
Industrial Production and Technology	254	-	-	-	-
Social Development	11,443	227	-	320	194
Exploration and Exploitation of Space	-	-	-	-	-
Basic Research	701	93	-	-	-
Other Civil Research	5	-	-	-	-
Total	**45,787**	**516**	**4,039**	**620**	**3,011**

PROVINCIAL CO-ORDINATORS

Five provincial governments are currently sponsoring the Science and Innovation Surveys Section in the collection of similar scientific activity data. Below is a list of co-ordinators for the various sponsoring Departments/Ministries.

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